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SKJERVEN MORRILL MACPHERSON FRANKLIN &
FRIEL LLP
25 METRO DRIVE SUITE 700
SAN JOSE CA 95110-1349

EXAMINER	
ANYASO,U	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.	Applicant(s)
09/307,044	Duboc et al
Examiner	**Group Art Unit**
Uchendu O. Anyaso	2775

☒ Responsive to communication(s) filed on *May 7, 1999*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-130* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-130* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *5*

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

1. Claims 1-130 are pending in this action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1-12, 15-21, 28, 29, 40-44, 57-62, 66-81, 84-87, 93-97, 119, 124-125,** and **127-130** are rejected under 35 U.S.C. 102(b) as being anticipated by *Jones et al* (U.S. Patent 5,175,637).

Regarding **Claims 1, 57, 60, 66, 125, 127 and 129,** *Jones et al* teaches a backlit display, an imaging cell on which an image is formed, a source of pulsed backlighting which sequentially illuminates portions of the imaging cell, a shutter in front of the imaging cell, comprising a plurality of segments, each segment being switchable between a substantially transparent state and a strongly light absorbing state and being associated with a portion of the imaging cell which is being illuminated in sequence, and a switching means for switching each segment synchronously with the pulsed backlighting such that each segment is in its substantially transparent state when the source of pulsed backlight is not illuminating such portion of the imaging cell (column 3, lines 9-28). It is inherent that the combination of the switching

mechanism and the pulsed backlighting help produce the multiplicity of the selection signals which activate the plurality of segments.

Regarding **Claims 2, 58, 61, 67**, in addition to reasons described in Claims 1, 57, 60 and 66 respectively, *Jones et al* teaches that the shutter in front of the imaging cell comprises a plurality of segments, each being switchable between a substantially transparent state and a strongly light absorbing state (column 3, lines 14-17). Furthermore, *Jones et al* teaches the transmission of a part of the ambient light while it is in its light transmissive state, and absorbs portions of the ambient while in its light absorptive state (column 4, lines 54-68 *to* column 5, lines 1-29, figures 1a, 1b, 2a, 2b, 7a & 7b).

Regarding **Claims 3** and **68**, in addition to reasons described in Claims 2 and 67 respectively, *Jones et al* teaches a method wherein the shutter transmits a portion of the ambient light being at least 0.1 (column 4, lines 24-30).

Regarding **Claims 4** and **69**, in addition to reasons described in Claims 1 and 66 respectively above, *Jones et al* teaches a shutter strip that appears dark when it is in its light-absorptive state (column 4, lines 41-42, figure 1b at 3b).

Regarding **Claims 5** and **70**, in addition to reasons described in Claims 1 and 66 respectively, this aspect of applicant's claims is inherent to displays having contrast features.

Regarding **Claims 7** and **76**, in addition to reasons described in Claims 6 and 75 respectively, *Jones et al* teaches a shutter strip/segment in its light-transmissive state when the activated image line/cell associated with that strip is dark (column 4, lines 54-59).

Regarding **Claims 8** and **77**, in addition to reasons described in Claims 6 and 75 respectively, *Jones et al* teaches a shutter in front of the imaging cell comprising a plurality of segments being switchable synchronously between a transparent state and a light absorbing state (column 3, lines 14-28).

Regarding **Claims 9 and 78**, in addition to reasons described in Claim 8 and 77 respectively, *Jones et al* teaches an embodiment of his invention whereby the screen need not switch entirely all at once but may do so in segments (column 5, lines 43-44), and is synchronously switchable such that the front layer is in its transparent state when the projector is projecting an image and in its dark state when the projector is not (column 5, lines 11-24). This is inherently similar to applicant's claim of display wherein plurality of the shutter strips are simultaneously in their light-transmissive states when activated while the other associated imaging lines are deactivated.

Regarding **Claims 16 and 74**, in addition to reasons described in Claims 10 and 16 respectively, *Jones et al* teaches a switching means which functions as a control component for selectively placing the shutter strips in their light-transmissive and light-absorptive states (*see* figures 1a & 1b at 4).

Regarding **Claims 17** and **71**, in addition to reasons described in Claims 16 and 66 respectively, it is inherent the switching means comprises control elements which facilitates the placement of the shutter in their light-transmissive and light-absorptive states.

Regarding **Claims 18** and **72**, in addition to reasons described in Claims 17 and 71 respectively, *Jones et al* teaches a display wherein each control element is operable to provide light that causes the shutter strips/segments to be in the light-transmissive and light-absorptive states (column 3, lines 49-54).

Regarding **Claims 19** and **85**, in addition to reasons described in Claims 17 and 80 respectively, arguments discussed in Claim 6 are also applicable to Claims 19 and 85.

Regarding **Claims 20 and 86**, in addition to reasons described in Claims 6 and 71 respectively, *Jones et al* teaches a shutter in front of the imaging cell, comprising a plurality of

segments, which is similar to the laterally separated imaging elements as claimed by applicant (column 3, lines 14-19).

Regarding **Claims 21** and **87**, in addition to reasons described in Claims 20 and 86 respectively, *Jones et al* teaches a display wherein the imaging element is light emissive (claim 1, column 10, lines 53-68).

Regarding **Claim 40** and **124**, in addition to reasons described in Claims 1 and 66, *Jones et al* teaches imaging and shutter lines which are parallel to one another (figure 4 at 17).

Regarding **Claims 41** and **95**, in addition to reasons described in Claims 1 and 66 respectively, *Jones et al* teaches shutter strips comprising parts of a liquid-crystal structure (column 7, lines 56-59).

Regarding **Claims 42** and **96**, in addition to reasons described in Claims 41 and 95 respectively, *Jones et al* teaches a display wherein the liquid crystal contains a liquid-crystal material capable of being controlled to selectively transmit an image defined by unpolarized light incident on the liquid crystal material (column 8, lines 44-65).

Regarding **Claim 43** and **97**, in addition to reasons described in Claim 41 and 96 respectively, *Jones et al* teaches a display with a liquid crystal material that comprises liquid material, pleochroic dye with a dark and transmissive appearance (column 8, lines 66-67 *to* column 9, lines 1-22).

Regarding **Claim 44**, in addition to reasons described in Claim 43, *Jones et al* teaches that the molecules of the pleochroic dye generally align with the molecules of liquid crystals (column 8, lines 66-67 *to* column 9, line 1).

Regarding Claims **6, 10, 11, 12, 15, 28, 29, 35, 59, 62, 73, 75, 79, 80, 81, 84, 93, 94, 119, 128,** and **130**, in addition to arguments discussed in Claims 1, 6, 10, 11, 11, 1, 28, 34, 57, 60, 72, 66, 71, 79, 80, 80, 66, 93, 118, 127, and 129 respectively, arguments discussed in independent claims 1, 57, 60, 66, 125, 127 and 129 are also applicable to claims 6, 10, 11, 12, 15, 28, 29, 35, 59, 62, 73, 75, 79, 80, 81, 84, 93, 94, 119, 128, and 130.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 13-14, 22-27, 82, 83, 88-92** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Nakamoto* (U.S. Patent 6,031,328).

Regarding **Claims 13, 14, 22, 23, 82, 83, 88,** in addition to reasons described in Claims 12, 13, 21, 22, 80, 82 and 87 respectively, *Jones et al* does not specifically teach a display with imaging lines that emit light in response to radiation that impinges selectively on light emissive material of that imaging line. On the other hand, *Nakamoto* teaches a phosphor member for each pixel formed on the surface of the anode electrode facing the cold cathodes (*see Abstract*). This results in the formation of the light source for emitting light for each pixel (*see Abstract*). A well-known liquid crystal display panel for modulating an amount of transmission light for each pixel is provided above the light source (*see Abstract*).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et* and *Nakamoto* because while *Jones et al* teaches a display presenting an image having a shutter which switches between a substantially transparent state and a dark, light absorbing state, *Nakamoto* teaches how a flat panel display device with a light source controls transmission light for each pixel. The motivation for combining these inventions would have been to design a flat panel display device that provides high precision, high brightness, high contrast, and small power consumption.

Regarding **Claims 24** and **89**, in addition to reasons described in Claims 22 and 88, it is inherent that radiation comprises electrons.

Regarding **Claims 25** and **90**, in addition to reasons described in Claims 21 and 87, *Jones et al* teaches a potential across the imaging element through the use of a pulsed backlight (claim 1, column 10, lines 53-66).

Regarding **Claims 26** and **91**, in addition to reasons described in Claims 20 and 86, *Jones et al* does not specifically teach a light valve present in each imaging element. On the other hand, *Nakamoto* teaches a light modulator which controls an amount of transmission of each light emitted from the phosphor member (column 2, lines 47-50).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al* and *Nakamoto* because while *Jones et al* teaches a display presenting an image having enhanced contrast which switches between a bright, and dark state, *Nakamoto* teaches how to control the transmission of the light emitted. The motivation for doing so would have been to provide a flat panel display device that has high brightness, high contrast, small power consumption, and high precision.

Regarding **Claims 27** and **92**, in addition to reasons described in Claims 26 and 91, arguments described in Claim 26 are also applicable to claims 27 and 92.

6. **Claims 30-39, 63-65, 115-118, 120-123** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Curtin et al* (U.S. Patent 5,686,790).

Regarding **Claims 30** and **115**, in addition to reasons described in Claims 1 and 66 respectively above, *Jones et al* does not explicitly teach an image-producing component which has a first and second plate structures spaced apart. On the other hand, *Curtin et al* teaches a faceplate, and a backplate which extend parallel to each other in an active display region (column 3, lines 50-57).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al* and *Curtin et al* because while *Jones et al* teaches a display presenting an image having enhanced contrast which switches between a bright, and dark state, *Curtin et al* teaches a flat panel display which includes a faceplate and backplate wherein the faceplate includes an active region. The motivation for combining these inventions would have been to produce a display structured to produce or modulate light.

Regarding **Claim 31**, in addition to reasons described in Claim 30 above, *Curtin et al* teaches a flat panel device which includes a flatplate (column 3, lines 50-51).

Regarding **Claims 32** and **33,** in addition to reasons described in Claim 30, and for **Claims 116** and **117**, in addition to reasons described in Claims 115 and 116 respectively,

Curtin et al teaches an image producing component (flat panel device) comprising a faceplate, backplate, a cathode means for emitting electrons, and a light-emitting means (*see Curtin et al* at claims 1 & 11, column 27, lines 25-35 *and* column 28, lines 4-8).

Regarding **Claims 34, 37, 38** and **39,** in addition to reasons described in Claim 1 above, and for **Claims 63, 64, 65, 118, 121, 122, and 123,** in addition to reasons described in Claims 60, 63, 64, 66, 118, 118, and 122 respectively, *Curtin et al* teaches an image-producing component which is a flat panel device, and this comprises a cathode ray tube display, liquid crystal display, plasma displays, electroluminescent and light-emitting displays (column 5, lines 59-63; column 3, lines 50-60). Furthermore, *Curtin et al* teaches a flat panel display in which electrons are emitted from the cathode surface toward the phosphor coated interior of the faceplate (column 8, lines 21-28, figure 2A at 202, 203 & 206).

Regarding **Claims 35**, in addition to reasons described in Claim 34 above, *Curtin et al* teaches a scheme for updating the imaging line with the aid of the driver circuitry wihich causes light emission at the pixels (column 3, lines 65-67 *to* column 4, lines 1-6).

Regarding **Claims 36 and 120**, in addition to reasons described in Claims 34 and 119 respectively above, *Curtin et al* teaches the presence of a ceramic substrate that is connected with

the elements (column 3, lines 65-67 *to* column 4, lines 1-3). This ceramic substrate is naturally made of organic material.

7. **Claims 45-53,** and **98-105** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Jones et al* (U.S. Patent 5,175,637) in view of *Waters et al* (U.S. Patent 4,596,446).

Regarding **Claims 45, 53**, and **98**, in addition to reasons described in Claims 43, 43 and 96 respectively, *Jones et al* teaches a display in which the molecules of the pleochroic dye generally align with the molecules of liquid crystals (column 8, lines 66-67 *to* column 9, line 1). However, *Jones et al* does not teach a display wherein the host liquid crystal material comprises a cholesteric liquid crystal. On the other hand, *Waters et al* teaches a liquid crystal device which comprises a layer of long pitch cholesteric liquid crystal material incorporating a pleochroic dye (*see Waters et al* at Abstract).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Jones et al* and *Waters et al* because while *Jones et al* teaches how a display with molecules of the pleochroic dye generally align with the molecules of liquid crystals, *Waters et al* teaches how a liquid crystal device with cholesteric liquid crystal material incorporate a pleochroic dye. The motivation for combining these inventions would have been to achieve a sharp transmission-voltage characteristic for rapidly increasing voltages, without hysteresis.

Regarding **Claims 46** and **99**, in addition to reasons described in Claims 45 and 98 respectively, *Waters et al* teaches a liquid crystal device with a cholesteric twist of at least 180 degrees (column 5, lines 1-8).

Regarding **Claim 47** and **100**, in addition to reasons described in Claim 46 and 99, *Waters et al* teaches a cholesteric twist in its light absorptive state which is at least 360 degrees (column 1, lines 55-60).

Regarding **Claim 48, 49, 50, 101, 102, 103** in addition to reasons described in Claims 46, 48, 46, 99, 101 and 99 respectively, *Waters et al* teaches a liquid crystal device with a cholesteric twist that falls within the range of 3-5 micrometers, and the liquid crystal material thickness of no more than 10 nanometers (column 2, lines 12-28).

Regarding **Claims 51** and **52**, in addition to reasons described in Claims 46 and 52 respectively, *Waters et al* teaches instances where the dye has a concentration of 0.1%-10% in the host liquid-crystal material (column 6, lines 65-68 *to* column 7, lines 15-32).

Regarding **Claims 104** and **105**, in addition to reasons described in Claims 99 and 104 respectively, *Waters et al* teaches instances where the dye has a concentration of 0.1%-10% in the host liquid-crystal material (column 6, lines 65-68 *to* column 7, lines 15-32).

8. **Claims 54-56, 106-114,** and **126** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Curtin et al* (U.S. Patent 5,576,596) in view of *Jones et al* (U.S. Patent 5,175,637).

Regarding **Claims 54, 106, 111** and **126**, in addition to reasons described in Claims 41, 95, 107 and 125 respectively, *Curtin et al* teaches an optical device which contains first (302) and second plates (303), and which are laterally separated from one another by a pattern of ridges (314) situated over the first plate, light-emissive regions (313) situated in spaces between the ridges, electron-emissive elements (309) that maintains the desired spacing between the plates (*see Abstract*). However, *Curtin et al* does not teach the presence of shutter strips in his display. On the other hand, *Jones et al* teaches the presence shutter strips in his liquid-crystal device.

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Curtin et al* and *Jones et al's* inventions because while *Curtin et al* teaches how to improve contrast and color purity in emitting structures with a design of two laterally spaced apart plates, *Jones et al* teaches a display with shutter strips that helps improve the contrast capability. The motivation for combining these inventions would have been to improve the contrast capability of a display.

Regarding **Claim 55**, in addition to reasons described in Claim 1 above, *Curtin et al* teaches an aspect ratio of average of lateral dimension to maximum thickness of at least 4 (column 4, lines 48-64).

Regarding **Claim 56**, in addition to reasons described in Claim 1 above, *Curtin et al* teaches a CRT display that utilizes a raised black matrix in accordance with the invention (column 3, lines 11-14, figure 2).

Regarding **Claims 107, 112,** and **113**, in addition to reasons described in Claims 106, 107 and 112 respectively, *Curtin et al* teaches electron-emissive elements situated over the second plate (figure 3B at 313 & 315). This is analogous to a third electrical conductor as claimed by applicant. However, *Curtin et al* does not teach a switching means in his display. On the other hand, *Jones et al* teaches a switching means for switching the shutter synchronously with the pulsed backlighting such that the shutter is in its substantially transparent state when the source of pulsed backlighting is in its light emissive state (column 3, lines 1-5).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Curtin et al* and *Jones et al* because while *Curtin et al* teaches a display with multiple conductive elements, *Jones et al* teaches a switching means for enabling the shutter to achieve a transparent state when the source of the pulsed backlighting is in its light emissive state. The motivation for combining these inventions would have been to improve the contrast capability of a display.

Regarding **Claims 108 and 109**, in addition to reasons described in Claims 107 and 108 respectively, *Curtin et al* teaches a display that contains a transparent electrically insulating flat faceplate and an electrically insulating flat backplate (column 4, lines 48-59, figure 2 at 302 &

303). Furthermore, *Curtin et al* teaches how the light-emissive regions (313) produce light of various colors, and how the ridges (314) which are non-emissive form a black matrix for region when they are struck by electrons emitted from electron-emissive elements (column 5, lines 64-67 to column 6, lines 1-5). However, *Curtin et al* does not teach a switching means in his display. On the other hand, *Jones et al* teaches a switching means for switching the shutter synchronously with the pulsed backlighting such that the shutter is in its substantially transparent state when the source of pulsed backlighting is in its light emissive state (column 3, lines 1-5).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Curtin et al* and *Jones et al* because while *Curtin et al* teaches how the light-emissive regions (313) and the ridges (314) react when they are struck by electrons emitted from electron-emissive elements, *Jones et al* teaches the use of a switching means to attain a desired state in the light effect of a display. The motivation for combining these inventions would have been to improve the contrast capability of a display.

Regarding **Claim 110**, in addition to reasons described in Claim 108, *Curtin et al* teaches that the faceplate consists of glass, and the backplate consist of glass, ceramic, or silicon (column 4, lines 54-57, figure 2 at 302 & 303).

Regarding **Claim 114**, in addition to reasons described in Claim 107, *Jones et al* teaches a synchronizer switch that produces a contrast in the display by producing a net effect of

producing a bright image when the image is projected, and a dark image during other times (*see Jones et al* column 4, lines 54-62). This type of switch inherently containing a phototransistor.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,477,105 to *Curtin et al* for a structure of light-emitting device with raised black matrix for use in optical devices such as flat-panel cathode-ray tube.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. The examiner can normally be reached on Monday through Friday from 9:00 a.m. to 5:30 a.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached on (703) 305-9720. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-6606.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Uchendu O. Anyaso

08/28/2000

STEVEN J. SARAS
SUPERVISORY PATENT EXAMINER
GROUP 2700